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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,027	02/19/2004	Ali Unal	370044-00002	4276

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EXAMINER
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MORILLO, JANELLE COMBS

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/782,027	<b>Applicant(s)</b> UNAL ET AL.	
	<b>Examiner</b> Janelle Combs-Morillo	<b>Art Unit</b> 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,4,6-13,15,21-25 and 34-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 3-4, 6-13, 15, 21-25, 34-49, 59, 64-66 is/are allowed.
- 6) ☒ Claim(s) 50,52-57 and 63 is/are rejected.
- 7) ☒ Claim(s) 51,58 and 60-62 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>083004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 2, 2005 has been entered.

### ***Claim Objections***

2. Claim 58 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 58 (which is dependent on claim 1) mentions the quenching prior to rolling occurs with a quenching device, wherein said limitation is already contained in claim 1.

3. Claims 60-62 are objected to because of the following informalities: claim 60 is objected to because step (ii) of claim 1 does not mention hot or warm rolling. Similarly, claim 61 is objected to because step (iii) of claim 1 does not mention solution heat treatment. Claim 62 is dependent on objected claim 61. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 50, 53-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant et al (US 6,264,765).

Bryant teaches an in-line process of continuously casting non-heat treatable aluminum alloys (column 2 line 20-21) to a given thickness, hot rolling to a final thickness, and immediately annealing (abstract, claim 1). Said quenching can be accomplished employing water, air, or a combination of both (column 3 lines 9-10) see also Fig. 1- #7 (induction heater) #9 (quench station). Bryant teaches the aluminum alloy strip leaves the hot rolling mill at temperatures between 400-600°F, and the final annealing occurs at temperatures between 650-1000°F (column 4 lines 47-48, 59).

Bryant does not specify quenching the strip to a temperature between 110-720 °F. However, because Bryant teaches quenching after annealing at temperatures between 650-1000°F, it would have been within the level of one of ordinary skill in the art to quench to temperatures much lower than the above mentioned annealing temperature, such as between 110-720 °F substantially as presently claimed.

Concerning the formation of an O temper, because Bryant teaches a process substantially as presently claimed, then substantially the same O type temper is held to be achieved. The examiner asserts that where the claimed and prior art products are identical or substantially

Art Unit: 1742

identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. The prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985), see MPEP 2112.01.

Concerning claims 53 and 54, as stated above, Bryant teaches overlapping rolling and annealing temperature ranges.

Concerning claim 55, though Bryant does not teach the holding time for annealing, Bryant teaches “sufficient time for the induction coils to raise the temperature of the metal to the appropriate annealing temperature... to achieve full through- thickness annealing” (column 4 lines 57-60). Additionally, in-line induction heating is known in the art to produce high heating rates and heat through thin strip in a very rapid time period. It would have been obvious to one of ordinary skill in the art to select a time that would “raise the temperature of the metal to the appropriate annealing temperature... to achieve full through- thickness annealing”, substantially as taught by Bryant, such as the presently claimed 0.1-10 seconds.

Concerning claim 56, as stated above, Bryant teaches a quenching device.

Art Unit: 1742

6. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant as applied to claim 50 above, and further in view of in view of McAuliffe et al (US 5,106,429).

Though Bryant mentions coiling said final sheet after quenching (column 4 line 63), Bryant does not mention tension leveling of the sheet. However, McAuliffe teaches that tension leveling cold rolled strip can be done to achieve a more uniform flatness (cl. 23, column 9 lines 11-14). It would have been obvious to one of ordinary skill in the art to tension level prior to coiling the aluminum strip taught by Bryant, because McAuliffe teaches that tension leveling achieves a more uniform flatness (cl. 23, column 9 lines 11-14).

7. Claims 50, 52-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lorentzen et al (US 20040007295) in view of Bryant.

Lorentzen teaches an in-line process [0018] of continuously casting aluminum alloys to a given thickness, hot rolling to a final thickness without cold rolling [0035], and annealing to provide an intermediate temper such as O type temper [0013], which can be further processed by leveling #416, Fig. 4. Lorentzen teaches the hot rolling at temperatures of 700-1000 °F (cl. 11), and annealing at temperatures 600-1000°F for 1-10 seconds [0041].

Lorentzen does not specify quenching the strip after annealing to a temperature between 110-720 °F. However, Bryant teaches quenching after annealing for similar continuous in line processes of forming aluminum alloy sheet, wherein said quenching can be accomplished by employing water, air, or a combination of both (column 3 lines 9-10) see also Fig. 1- #7 (induction heater) #9 (quench station). It would have been within the level of one of ordinary skill in the art to quench to temperatures much lower than the above mentioned annealing temperature, such as between 110-720 °F substantially as presently claimed, because Bryant

Art Unit: 1742

teaches said quenching in an in-line process of forming aluminum alloy strip is beneficial for obtaining a strip with good mechanical properties (see examples, figures).

Concerning claims 53-55, as stated above, Lorentzen teaches overlapping rolling and annealing temperature and time ranges.

Concerning claim 56, as stated above, the combination of Lorentzen and Bryant teaches a quenching device.

8. Claims 57 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al (US 6,959,476).

Li teaches a method of continuously belt casting a thin cast slab of aluminum, followed by hot rolling into a sheet, solution heat treating and quenching (see Fig. 1, 2). Li teaches the strip enters the hot rolling mill #30 directly after casting #2. The hot mill entry temperature is 700-1100°F, while the exit temperature ranges 425-950°F (column 8 lines 40, 45, 53-55). Though cold rolling is optional, it is not required to achieve the final end product (column 9 lines 18-19). Directly after hot rolling, in-line solution heat treating takes place (column 9 lines 26-45) wherein solutionizing can take place in 5-10 seconds (column 9 line 34). Continuous quenching follows solution heat treatment (#50) which can occur through cold water spray quenching device (column 9 lines 43-45). Additionally, Li teaches said process produces a T type temper (see column 14 line 56).

Li does not specify quenching the strip to a temperature of 110-350°F. However, Li teaches quenching to a temperature below the hot rolling exit temperature of 425-950°F, therefore it is held to be within the scope of Li to quench to a temperature within the presently claimed range of 110 to 350 °F, substantially as presently claimed. Changes in concentration or

Art Unit: 1742

temperature will generally not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical, i.e. they produce a new and unexpected result. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955), Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages"). A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Quenching to a given lower temperature is known to be a result effective variable, wherein the expected result is a super saturation of solution.

Because Li teaches a process of casting, hot rolling, solution treating, and quenching a heat treatable aluminum alloy to a T type temper, it is held that Li has created a prima facie case of obviousness of the presently claimed invention.



***Allowable Subject Matter***

9. Claims 1, 3-4, 6-13, 15, 21-25, 34-49, 59, 64-66 are allowable over the prior art of record.

The examiner agrees that the prior art does not teach or suggest a continuous in-line process of manufacturing an O temper (cl. 1, 65) or T temper (cl. 35, 66) by the presently claimed process steps complete with the presently claimed quenching step prior to hot or warm rolling (see in particular arguments p 12-16, 18-20, 22-23).

10. Claims 51 and 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Additionally, claim 58 is objected to as stated in paragraphs above (as being of improper dependent form).


***Conclusion***


11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCM   
February 14, 2006

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER  
GROUP 1700